**Amendments in the specification:**

1) Please replace the paragraph beginning on line 17 of page 1 with the following paragraph:

The present application cross references the concurrently filed and commonly owned US Patent Application 10/723,449 titled "Compact Pinlifter Assembly Integrated in Wafer Chuck" by Daniel Tran, which is hereby incorporated by reference.

2) Please replace the paragraph beginning on line 11 of page 3 with the following paragraph:

The elevator provides two platforms. The top platform is configured for receiving a wafer cassette whereas the elevator's bottom platform is configured for carrying a commercial ~~prealinger~~ prealigner. The robotic arm is configured in conjunction with a movement range and pinlifters of the X-Y stage. The elevator again is configured and positioned in conjunction with the positioning stage's movement range, the robotic arm's range and the wafer's size such that the overall footprint of the handling system is at a minimum for a given wafer size.

3) Please replace the paragraph beginning on line 19 of page 3 with the following paragraph:

In order to facilitate the single axis robotic arm, an effector is shaped in correspondence with the pinlifters' positions ~~osition~~s on the chuck. The effector has a distal

tangential portion with a carrying face for centrally contacting the wafer bottom. The pinlifters are positioned and configured for lifting the wafer above the carrying face in a balanced fashion. The pinlifters are preferably concentrically arrayed on the wafer chuck with at least one spacing being sufficientl<u>y</u> large such that the carrying face may be moved into central position with respect to the ~~chucks~~ <u>chuck's</u> center axis without colliding with the raised pinlifters.

4) Please replace the paragraph beginning on line 27 of page 5 with the following paragraph:

In accordance <u>with</u> ~~to~~ **Fig. 1**, a wafer testing device **1** may be a well known spectrometer, reflectometer or other well known wafer testing device in which a wafer **10** needs to be moved and positioned with high precision~~,~~ beneath and relative to a measurement head **42**. In the Figures, the wafer **10** is a representation of a multitude of wafers that may be handled during operational use of the wafer testing device **1**. Hence, where it is referred in the following to wafer **10** any single or multiple equally sized wafer(s) may be considered as appropriate and as it may well be appreciated by anyone skilled in the art.

5) Please replace the paragraph beginning on line 19 of page 7 with the following paragraph:

As shown in **Fig. 2** and in the exemplary case of employed X-stage **31** and Y-stage **32**, the X-stage **31** may have an X-travel along a linear precision axis **AX** and the Y-stage **32** may have a Y-travel along a linear precision axis **AY**. Axes **AX** and **AY** are

preferably perpendicular to each other. The linear precision axis **AX** may be substituted by a precision rotation axis **PR** of the chuck **33** in case the X-stage **31** is substituted by a rotating stage. The pinlifters **34** are moveable along a dual positioning axis **DP** between a top position and a bottom position. The effector **52** is rotatable around a handling rotation axis **RA** between a chuck loading orientation and at least one elevator alignment orientation. The elevator is actuated along a vertical gross ~~postioning~~ positioning linear axis **VA**. The ~~prealinger~~ prealigner **8** has a prealigner operating axis **PA** which is fixed with respect to the elevator **7**. The cassette **6** is positioned with respect to the elevator **7** such that a wafer stacking axis **SA** of the cassette **6** is in a predefined position. The cassette platform **71** is preferably configured for receiving and positioning the cassette **6** such that the stacking axis **SA** is substantially collinear with the prealigner operating axis **PA**. In that case there is only a single elevator alignment orientation for the effector **52**. The wafer **10** is stacked within the cassette **6** such that the wafer center substantially coincides with the stacking axis **SA**. The wafer stacking levels **61** have a stacking pitch **SP**. Cassette **6** may be replaced by another equally configured cassette during the operational use of the wafer testing device **1**.

6) Please replace the paragraph beginning on line 11 of page 9 with the following paragraph:

Similar to the teachings of **Figs. 3** and **4**, the wafer **10** may be temporarily inserted into the prealigner **8** along the ~~prealinger~~ prealigner loading direction **LP**, as is illustrated in

**Figs. 5** and **6**. Here, the effector **52** may be brought into a second elevator alignment orientation where the carrying face is brought into interference with the prealigner operating axis **PA**. There, the prealigner **8** may perform a well known prealignment of the wafer **10**. This may be optionally accomplished by an assisting vertical movement of the elevator **7** to induce a relative vertical ~~movment~~ movement of the wafer **10** with respect to the prealigner **8**. In the preferred embodiment, loading directions **LC** and **LP** are substantially collinear. The terms loading directions **LC** and **LP** are introduced solely for the purpose of explaining the working concept of the present invention without any limiting effect on cassette **6** and prealigner **8**. As may be well appreciated by anyone skilled in the art, cassette **6** and ~~prealinger~~ prealigner **8** may be alternating loaded/unloaded in any suitable fashion and corresponding with eventual particularities of cassette **6** and ~~prealinger~~ prealigner **8**.

7) Please replace the paragraph beginning on line 5 of page 10 with the following paragraph:

The scope of the invention includes embodiments in which one or both of the loading axes **LC**, **LP** are aligned with a virtual loading axis that may be composed of a combined movement of the affiliated components around at least two of axes **AY**, **RA**, and **AX**. In that case, the travel of the wafer **10** along the loading axes **LC**, **LP** may be extended beyond the travel of a single affiliated device. For example, a virtual loading axis may be defined that ~~is in~~ makes a 45 degree angle with respect to the axes **AX** and **AY**. In that example, the loading travel of

the wafer **10** along the virtual loading axis may be the square root of the sum of each of X-travel's and Y-travel's square. Elevator **7** may be accordingly configured and positioned together with the cassette **6** and prealigner **8** as may be well appreciated by anyone skilled in the art.

8) Please replace the paragraph beginning on line 24 of page 11 with the following paragraph:

Actuation and positioning of the pinlifters **34** may be accomplished in any well known fashion or by a compact pinlifter assembly described in the concurrently filed US Patent Application 10/723,449 titled "Compact Pinlifter Assembly" by Daniel Tran, which is hereby incorporated by reference.

9) Please replace the paragraph beginning on line 5 of page 12 with the following paragraph:

As is additionally shown in **Figs. 9, 10,** the robotic single axis system **5** is configured to fit into the tight spatial ~~envelop~~ envelope defined by the spatial constraints described under **Figs. 4** and **6**. At one hand all involved elements are fitted within the lateral boundaries of the assembly plate **51**. The controller motor **53** and reduction gear **54** are fitted adjacent and within the height of the X-stage **31** and preferably within the loading level **LL**. The reduction gear **54** utilizes preferably timing belts **541** for a smooth and vibration free reduction of the motor's **53** rotational speed. For a 300mm diameter wafer **10**, a robotic single axis system **5** may fit within a concentric ~~envelop~~ envelope **CE** to the chuck **33** having a

maximum diameter of 21 inches while the effector **52** is in parking position.

10) Please replace the paragraph beginning on line 28 of page 12 with the following paragraph:

The carrying face **522** is slightly raised above the top of the remaining effector **52**, such that an eventual deflection of the effector **52** due to the wafer's **10** weight does not compromise the ~~snuggle~~ snug contact between the wafer **10** bottom and the carrying face **522**. The effector **52** may be fabricated from highly stiff material such as carbon enforced compound material. The compact configuration of the robotic single axis system **5** provides for a minimum real estate consumption.

11) Please replace the paragraph beginning on line 4 of page 13 with the following paragraph:

Overall the wafer handling system of the present invention provides for a highly precise positioning with a minimum of controlled axis movement. Due to the low number of ~~axis~~ axes by which the wafer is manipulated, the wafer's **10** transfer may be accomplished in a reliable, quick and efficient manner. Well known computerized controlling means may be employed for controlling the affiliated components.

**Comments on amendments to the claims**

Independent claims 1, 4 and 6 are currently amended to more precisely claim the present invention. In particular, "wherein said robotic single axis system has exactly one rotatable mechanical connection" is now recited. Support for this amendment is present in the application as filed (e.g., Figs 2 and 3 show alternate positions of effector 52 with respect to a single rotation axis RA). No new matter is introduced.

**DETAILED ACTION / Claim objections**

Claims 1 and 4 stand objected to for reciting "optical wafer testing" and "robotic arm system" without antecedent basis.

These informalities of claim language are hereby corrected by amendment. Other informalities in the claims that have been noticed at this time are also corrected. No new matter is introduced.

**DETAILED ACTION / Claim rejections under 35 USC 102**

Claims 1-8 stand rejected under 35 USC 102(b) as anticipated by US 5,944,476, hereinafter Bacchi.

Independent claims 1, 4 and 6 recite a "robotic single axis system". These claims are also currently amended to recite "wherein said robotic single axis system has exactly one rotatable mechanical connection", in order to make the meaning of "single axis system" explicit in the claims.

With respect to claims 1, 4, and 6, the above claim rejection is respectfully traversed on the grounds that Bacchi does not teach or suggest certain elements of these claims. More specifically, a "robotic single axis system" is not taught or suggested by Bacchi. Also, "pinlifters" as recited in the claims are not taught or suggested by Bacchi.

The robotic arm system of Bacchi is not a single axis system. For example, Fig. 1a of Bacchi shows a robotic arm having three rotation axes (16, 24, and 32). Lines 66-67 of column 4 of Bacchi also refer to a "three-link robot arm mechanism". Therefore, Bacchi does not teach or suggest the robotic single axis arm system as claimed in the present invention.

Pinlifters as recited in the claims are not taught or suggested by Bacchi. Examiner refers to reference number 43 of Bacchi as a "chuck", a "wafer holding face", a "top face" (of pinlifters), and a "chuck wafer holding face". It is respectfully held that not all of these interpretations can be simultaneously applied to reference number 43 of Bacchi, since they are logically incompatible. More specifically, it seems most correct to regard 43 of Bacchi as a chuck, a wafer holding face or a chuck wafer holding face, since these meanings are logically compatible and are not inconsistent with the description of Bacchi (e.g., lines 23 to 32 of column 5 refer to "chuck 43"). It is also noteworthy that chuck 43 is attached to a shaft 44 which is rotatable about its axis by motor 45. In particular, shaft 44 and chuck 43 are not vertically movable in the apparatus of Bacchi.

In sharp contrast, pinlifters as claimed in the present invention are members which are surrounded laterally by the chuck and which can be moved vertically with respect to the chuck to either of two positions, a top position and a bottom position. In the top position, "the top faces of the pinlifters are above a carrying face of the effector". In the bottom position, "the top faces of the pinlifters are below a wafer holding face of the chuck". Such vertically movable pinlifters are shown on Figs. 8-10 of the present application, and the quoted language above is recited in the claims. Accordingly, "pinlifters" as recited in the present claims are not taught or suggested by Bacchi.

For these reasons, the above rejection of claims 1, 4, and 6 is respectfully traversed. Claims 2, and 3 depend from claim 1, claim 5 depends from claim 4, and claim 7 depends from claim 6. Therefore, the above response to the rejection of claims 1, 4, and 6 is also responsive to the rejection of claims 2, 3, 5, and 7. For the record, it is also noted that the further numerical limitations of claims 2 and 7 are not taught or suggested by Bacchi. Furthermore, the further limitation in claims 3 and 5 to a pair of perpendicular stages defining a virtual loading axis is not taught or suggested by Bacchi.

Claim 8 is canceled.